



**COMMONWEALTH OF PUERTO RICO
PUERTO RICO ENERGY COMMISSION**

**IN RE: INTEGRATED RESOURCE PLAN FOR
THE PUERTO RICO ELECTRIC POWER
AUTHORITY**

ORDER No.: CEPR-AP-2015-0002

SUBJECT: DEFICIENCIES IN IRP FILING

ORDER

On May 22, 2015, the Puerto Rico Energy Commission (Commission or Energy Commission) approved and enacted Regulation No. 8594, known as the Regulation on Integrated Resource Plan for the Puerto Rico Electric Power Authority (Regulation 8594). Pursuant to this Regulation, the Integrated Resource Plan (IRP) shall consider, as a result of a detailed planning process, all the reasonable resources to satisfy the demand for electricity services during a twenty-year planning period, taking into account both supply- and demand-side electric power resources. Pursuant to Regulation 8594, the IRP filing shall include, among other matters, an assessment of the planning environment, a careful and detailed study of a range of future load forecasts, present generation resources, present demand resources, current investments in electricity conservation technologies, existing transmission and distribution facilities, and the relevant forecast and scenario analyses in support of the Puerto Rico Electric Power Authority's (PREPA's) selected resource plan.

As the record shows, PREPA filed its first IRP on July 7, 2015, with the exception of Volume V, which it filed on July 10, 2015. In accordance with the Order issued by the Commission on July 3, 2015, PREPA shall file an updated IRP by August 17, 2015 including PREPA's analysis and planning in light of the new environmental regulatory state of play after the decision of the Supreme Court of the United States in Michigan, et al. v. Environmental Protection Agency et al., No. 14-46 slip op. (U.S., June 29, 2015), concerning the applicability of the United States Environmental Protection Agency's ("EPA") Mercury and Air Toxics Standards ("MATS") regulation.

After conducting a preliminary assessment of PREPA's July IRP filing, the Commission has identified a series of deficiencies that are fundamental to the IRP. Therefore, in order to ensure that the entire IRP filing is complete, by virtue of the powers vested in this Commission pursuant to Section 6.3 of Act 57-2014, we order PREPA to address the following issues and correct the identified deficiencies in the updated IRP to be filed on August 17, 2015:

*See
JH*
JH2M

A. Volume 1: Supply Portfolios and Futures Analysis

(1) Regarding Section 2.2.3. "Representative Future Generation Resources Characteristics" PREPA shall:

- a) Provide the capital costs of each new generation option in either total dollars, or dollars per kilowatt (\$/kW).
- b) Explain why renewable energy options are not characterized.
- c) Provide the capital cost(s), variable and fixed operating and maintenance (O&M) costs for future renewable energy projects.

(2) As to page 3-19, PREPA shall:

- a) Specify a forecasted price of Renewable Energy Credits (RECs.)
- b) Specify if PREPA is assuming that it owns RECs for DG projects in Puerto Rico. If so, explain on what basis. (The document states: "Also we note that considering the DG expected for 2035, the actual coverage of the customer energy by renewable is 18 percent.")

(3) With reference to Table 3-2 (page 3-20) PREPA shall:

- a) Specify if the PV projects listed here are existing, or potential power purchase agreements (PPOA).
- b) Specify the costs assumed for these projects on a dollar per MWh basis (\$/MWh).

(4) Regarding Table 5-1 (page 5-1), PREPA shall explain its assumption that only 80% of the Energy Efficiency (EE) mandate is achieved.

(5) Regarding pages 6-2 through 6-9, PREPA shall explain, in detail, the process that was used to determine the appropriate resource and years to replace or repower existing units, add additional units, or retire various units. It shall further specify if PREPA and/or Siemens used a capacity expansion model, a capacity balance spreadsheet, expert opinion, or any other method to determine the appropriate resource and years.

(6) Regarding page 7-13, PREPA shall specify why transmission costs are assumed to be at the same level across all futures and explain the statement about STATCOMs and its relevance to Future 2 and transmission costs.



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- (7) Regarding page 7-15, PREPA shall specify if it has reviewed the outcome of the scenarios at alternative costs of capital, including assumptions that PREPA is unable to finance at a 9% nominal rate.
- (8) As to Figure 7-4 (page 7-21), PREPA shall specify the Future scenario associated with the demand shown there.
- (9) PREPA shall provide demand forecasts for Future 1, 2, 3, and 4 in MW and MWh, by year.
- (10) PREPA shall provide tabular data for Figures 7-14, 7-16, 7-19, 7-21, 7-23, 7-25, 7-27, 7-29, 7-31 and 7-33.
- (11) As to Section 8.1, PREPA shall explain why full RPS compliance is considered a sensitivity, rather than a statutory requirement.
- (12) Regarding Appendix B, PREPA shall specify if it assumed any ongoing capital expenditures required for existing and/or repowered units. If so, it shall further specify if these costs are reflected in the fixed O&M expenses, or if ancillary capital expenses are not reflected in the tables shown there.
- (13) Regarding Appendix C-1 through C-25, PREPA shall:
 - a) Provide a Load and Resources Balance table, by year, for each portfolio examined there, specifying the online date and available capacity for each resources.¹
 - b) Provide carbon dioxide (CO₂) emissions on a mass basis for existing sources, reconstructed or repowered sources, and new sources.

B. Volume III: Demand and Fuel Forecasts and Demand Side Management

- (1) Regarding page 1-7, PREPA shall explain how or where the Optimistic Scenario was used in the creation of Futures 1, 2, 3, or 4.

C. Volume IV: Air Quality Report

- (1) Regarding Section 1.1.4 (“NSR/PSD/NNSR”); the Puerto Rico Environmental Quality Board 2011 document titled “Puerto Rico Designation for the New 1-hour SO₂ NAAQS”²; and the 2012 letter to EPA³ indicating that four

¹ For reference, see Table 9.6 (page 133) of the 2015 Idaho Power IRP (<https://www.idahopower.com/pdfs/AboutUs/PlanningForFuture/irp/2015/2015IRP.pdf>).

² Available at http://epa.gov/so2designations/reclatters/R2_PR_techdoc.pdf

³ Available at http://www.epa.gov/so2designations/reclatters/R2_PR_revrec.pdf

regions of Puerto Rico be classified as non-attainment for the 2010 1-hr SO₂ NAAQS, PREPA shall:

a) Specify if the IRP conducted any analysis with respect to the 2010 standard for the 1-hr SO₂ NAAQS, and if so, how the 1-hr SO₂ NAAQS were taken into consideration.

b) If not, explain why.

(2) Regarding EPA's proposed rule to update existing ozone NAAQS,⁴ specify if the IRP conducted any analysis with respect to expected updates of the ozone NAAQS.

(3) Regarding Section 2.4 "Compliance Summary" PREPA shall:

a) Provide additional information on how the Clean Power Plan (CPP) compliance was calculated. It shall further specify if PREPA compared strategies wherein a mass-based compliance was compared to rate-based compliance.

b) Explain how PREPA incorporated energy efficiency and renewable energy into the CPP emissions rate.

(4) As to Table 2-7, PREPA shall explain how or why it is reasonable to assess a future wherein new sources are not compliant with expected regulatory requirements.

(5) PREPA shall provide the source data and underlining assumptions associated with "Total Puerto Rico Generation" in figures 2-1, 2-2, 2-3, 2-4, 2-5, 2-6, and 2-7.

D. Volume V: Evaluation of DG Impacts on the Distribution System

Volume V states that PREPA "requested a planning level study to identify the major costs associated with the necessary distribution system improvements needed to integrate different levels of distributed generation."⁵ Furthermore, it states that Siemens modeled four distribution feeders, "to investigate the amount of system improvements that were required to accommodate up to 100% of solar PV in a distributed generation scheme." With respect to this, PREPA shall:

(1) Identify what system upgrades would be required at each feeder in order to accommodate 100% solar PV as a percent of maximum demand.

⁴ Available at <http://www.epa.gov/airquality/ozonepollution/pdfs/20141125proposal.pdf>

⁵ See Volume V, page 1-1.



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- (2) Identify the costs associated with the upgrades identified to accommodate 100% solar PV as a percent of maximum demand.
- (3) Update the Volume V analysis to include a more realistic distribution of DG PV across feeder systems as opposed to being modeled at the halfway point of each section (Page 2-1).
- (4) Provide additional explanation to the “reverse power flow” constraint that was modeled in Volume V.
- (5) Figure 2-6 uses a July 1 load profile for Feeder 2801, while feeders 1529, 2501, and 6306 all appear to use load profiles for January 1. Explain why these loads used in modeling are from different periods.
- (6) The August 17 filing shall include an updated analysis based on future, expected load profiles of the feeders.

If PREPA needs clarification on any of these requirements, it shall state its questions or need for clarification in writing and submit it by electronic mail to the Commission’s General Counsel, no later than five (5) days from the date of notification of this Order via electronic mail. While PREPA and the Commission’s General Counsel and consultants may have verbal discussions about PREPA’s questions for efficiency purposes, all final questions and answers must be stated in writing. Verbal expressions and discussions about PREPA’s questions will have no evidentiary value or effect.

Should PREPA fail to comply with this Order, it will be subject to administrative fines of up to a maximum of twenty-five thousand dollars (\$25,000) per day of violation, without further notice, as well as any other sanction deem adequate by the Commission, pursuant to Act 57-2014 and the Commission’s Regulations.⁶

Be it hereby notified and published.



Agustín F. Carbó Lugo
Chairman



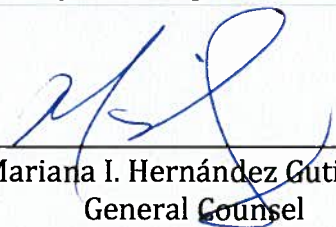
Ángel R. Rivera de la Cruz
Associate Commissioner



José H. Román Morales
Associate Commissioner

⁶ See, Article 6.37 of Act 57-2014, as amended; Section 12.02 of Regulation No. 8543, known as the Regulation on Adjudicative, Notice of Noncompliance, Rate Review and Investigation Procedures.

I certify that the Puerto Rico Energy Commission has so agreed on August 3 2015. I also certify that on this date a copy of this Order was notified to PREPA by electronic mail sent to n-vazquez@aepr.com and n-ayala@aepr.com.


Mariana I. Hernández Gutiérrez
General Counsel

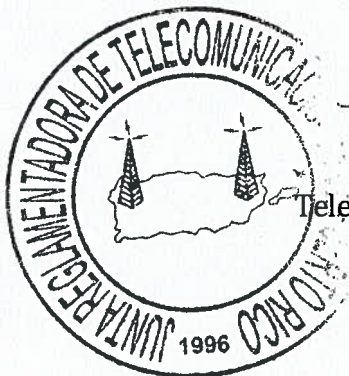
CERTIFICATION


I certify that this is a true and exact copy of the Order issued by the Puerto Rico Energy Commission. I further certify that today August 4, 2015, I have proceeded with the filing of this Order and I have sent a copy thereof to:

Puerto Rico Electric Power Authority

To the Attention of Nélide Ayala and Nitza D. Vázquez Rodríguez
PO Box 363928
Post Office Headquarters
San Juan, PR 00936-3928

For the record, I sign this in San Juan Puerto Rico, today August 4 2015.




Rafael O. García Santiago
Clerk of the Puerto Rico
Telecommunications Regulatory Board

